



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/920,927	08/03/2001	Shinichiroh Ikemasu	970607A	9951

23850 7590 04/01/2003

ARMSTRONG, WESTERMAN & HATTORI, LLP  
1725 K STREET, NW  
SUITE 1000  
WASHINGTON, DC 20006

EXAMINER

WEISS, HOWARD

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 04/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/920,927

Applicant(s)

IKEMASU ET AL.

Examiner

Howard Weiss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 62-79 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 62-79 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10. 6) ☐ Other: \_\_\_\_\_

Attorney's Docket Number: 970607A

Filing Date: 8/3/01

Continuing Data: Division of 08/876,908 (6/16/97)

Claimed Foreign Priority Date: 7/18/96 (JPX)

Applicant(s): Ikemasu et al. (Okawa)

Examiner: Howard Weiss

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 70 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 70 recites the limitation "the contact area" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each

claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1 to 3, 5 to 13, 16, 17, 63 to 65 and 68 to 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh (U.S. Patent No. 5,364,813) and Hayashide (U.S. Patent No. 5,500,558).

Koh shows most aspects of the instant invention (e.g. Figure 9) including:

- a semiconductor substrate **10** having an uppermost insulating film **11**
- a lamination of a first conductive film **12,12',12''**, a first insulating film (that portion of **14,14',14''** above the first conductive film), a second insulating film (that portion of **18** above the first conductive film) of silicon nitride or not of silicon nitride (Column 4 Lines 1 to 25) said lamination being gates of MIS transistors
- a pair of third insulating films (that portion of **14,14',14''** on the sidewalls the gates) formed on the sidewalls of the lamination, made of silicon dioxide and thinner than said first insulating film
- a pair of fourth insulating films (that portion of **18** on the sidewalls of the gates) contiguous with the second insulating film and covering said gates
- an interlevel insulating film **26** with apertures **38,40** formed through said interlevel film and filled with a second conductive film **18,37** and being parallel to said substrate surface
- a fifth insulating film **18**, an upper conductive pattern **25** and a sixth insulating film **28** covering the sidewalls of said upper conductive pattern and a seventh insulating film (thin layer above **28**) made of silicon nitride
- a field insulating film **2** with a wiring pattern **4** formed on the field insulating film and covered by a film of silicon nitride **9**

Koh does not show the gates made of a metal or metal silicide, a fifth insulating film, an upper conductive pattern and a sixth insulating film covering the sidewalls of said upper conductive pattern and a seventh insulating film made of silicon nitride, a field insulating film with a wiring pattern formed on the field insulating film and covered by a film of silicon nitride. Hayashide teaches (e.g. Figure 1) to make gates **4** of a metal silicide, a fifth insulating film **18**, an upper conductive pattern **25** and a sixth insulating film **28** covering the sidewalls of said upper conductive pattern and a seventh insulating film (thin layer above **28**) made of silicon nitride, a field insulating film **2** with a wiring pattern **4** formed on the field insulating film and covered by a film of silicon nitride **9** to improve productivity (Column 4 Lines 47 to 49). It would have been obvious to a person of ordinary skill in the art at the time of invention to make gates of a metal silicide, a fifth insulating film, an upper conductive pattern and a sixth insulating film covering the sidewalls of said upper conductive pattern and a seventh insulating film made of silicon nitride, a field insulating film with a wiring pattern formed on the field insulating film and covered by a film of silicon nitride as taught by Hayashide in the device of Koh to improve productivity.

6. Claims 4 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh and Hayashide, as applied to Claims 1 and 3 above, and further in view of Meguro et al. (U.S. Patent No. 5,061,985).

Koh and Hayashide shows most aspects of the instant invention (Paragraph 5) except to form an insulating film under the bottom of a second insulating film. Meguro et al. teach (e.g. Figure 1(B)) to form an insulating film **6** under the bottom of a second insulating film **8A,B** and defining an aperture **9** to improve the strength of the electrodes with respect to external forces (Column 2 Lines 53 to 57). It would have been obvious to a person of ordinary skill in the art at the time of invention to form a first insulating film under the bottom of a second or fourth insulating films and defining an aperture as taught by Meguro et al. in the device of Koh and Hayashide to improve the strength of the electrodes with respect to external forces.

7. Claims 14, 15, 18, 19, 66, 67 and 74 to 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koh and Hayashide, as applied to Claims 1 and 3 above, and further in view of Lee et al.

Koh and Hayashide in view of Meguro et al. show most aspects of the instant invention (Paragraph 5) except for the configuration with a capacitor as claimed. Lee et al. teach (e.g. Figure 1) that is common, and therefore obvious, to have a DRAM with a capacitor as claimed in a multi-layered circuit as taught by Koh and Hayashide (see Abstract).

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1 to 19 and 62 to 79 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tseng (U.S. Patent No. 5,731,130) teach to cover conductive film with multilayered insulation films.
10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

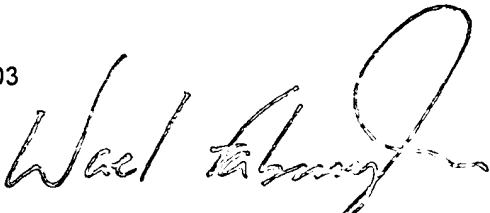
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing

date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [Howard.Weiss@uspto.gov](mailto:Howard.Weiss@uspto.gov). Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.
13. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/306, 758	thru 3/26/03
Other Documentation: none	
Electronic Database(s): EAST, IEL	thru 3/26/03

HW/hw  
27 March 2003

  
SUPERVISORY PRIMARY EXAMINER  
TECHNICAL CENTER

Howard Weiss  
Patent Examiner  
Art Unit 2814